



MEMORANDUM

Missouri Department of Transportation

St. Louis District

TO: Eric Schroeter
State Design Engineer

CC: Jim Smith - de
Jon Nelson - tr

FROM: Jeanne Olubogun
District Traffic Engineer

DATE: June 25, 2014

SUBJECT: St. Louis District Arterials
ITS Maintenance - J6Q2343F
Proprietary Item Certification (Wireless Vehicle Detection System)
Public Interest Finding Request (Sensys Networks)

I do hereby certify that in accordance with the requirements of 23 CFR 635.411(a)(2), this patented or proprietary item is essential for synchronization with existing highway facilities.


State Design Engineer

With respect to the above mentioned project, we request approval of both a Proprietary Item Certification of patented Sensys devices for continued synchronization with our existing system and a Public Interest Finding to acquire these devices from Sensys Networks without competitive bids since there are no other distributors of this product.

This project includes maintenance of the existing in-pavement, wireless detection system for the purpose of providing travel times, vehicle count and classification, and signal detection on many of the arterials in the St. Louis District. Accurate travel times are viewable to the public on a web-based graphical display. Installation and maintenance of the travel time system is a part of the overall data collection ability of the Sensys Networks detection probes. Based on the evaluation and familiarity of the current system and the integration risk of alternate systems, the St. Louis District of the Missouri Department of Transportation (MoDOT) respectfully requests the approval of a finding in the public interest to continue the use of the Sensys Networks system for maintenance of the existing deployment.

Existing Sensys Deployment

The initial deployment of Sensys in the St. Louis District occurred in 2008, with approximately 50 miles of arterial coverage instrumented in 6 weeks. Since then the deployment has grown to more than 250 miles of travel time capabilities, covering all major arterials. The St. Louis District currently has the largest deployment of Sensys travel time systems in the United States and continues to expand. For system accuracy, the District needs to maintain the existing system without introducing overlapping travel time calculations. Probes are used to accumulate volume, speed, and occupancy data at select locations.

The maintenance of the travel time system is a part of the overall data collection ability of the Sensys Networks detection probes. This system consists of detection probes, antenna receivers,

and repeaters (as needed for locations where the antennas are too far from the probes' signal). The antenna receivers are plugged in to the MoDOT Ethernet field switches located at the nearest traffic signal or ITS device cabinet. Through this connection, the system is then tied into the MoDOT communications network and data is streamed back to a central server configuration at the St. Louis District Traffic Management Center. This server reads and processes the data to provide report outputs and dynamic information to be displayed on a graphical overlay on a Google map in real-time for public use. This information is also used to display travel times on arterial Dynamic Message Signs where available.

Synchronization with the Current System

The District has made a significant investment in the current travel time and vehicle count/classification system throughout the metro area deploying over 2500 detection probes along the arterial network. This investment involves all elements of the deployment, including:

1. Configuring the system database and central software
2. Field testing and calibrating the Sensys Networks detection probes and antenna receivers
3. Training staff on the use and maintenance of the equipment
4. Maintaining inventory of equipment
5. Integrating with the Advanced Traffic Management System (ATMS)

Discussion of Alternatives

Research of alternative systems indicates that other than the Sensys system available only through Sensys Networks, there is not a singular system which reasonably meets the current needs and requirements of the MoDOT travel time and count/classification system. There is Bluetooth system technology that can provide the arterial travel time information, but introduction of a separate system would require the deployment of an additional database and integration with the ATMS software. This would require substantial additional resources of staff and budget to complete this deployment and integration. It would also require an increase in staff training for deployment and maintenance. The Bluetooth system would not be able to provide the same detailed vehicle count/classification data, which would then require yet another independent sensor and system. Any alternative systems would require the management of additional spare parts inventory and additional staff training on use and maintenance of such systems.

Traditional non-intrusive side-fire microwave traffic sensors can provide the desired vehicle count and classification data. This alternative, however, will not provide arterial travel time information as needed to meet the intent of the current system. This type of system would also require additional integration.

In conclusion, if either of the two alternate technologies were used to replace the existing Sensys devices, the cost to integrate and maintain the arterial travel time, vehicle traffic count, and vehicle classification is expected to be significantly greater than the existing Sensys Networks deployment. Neither alternate technology would provide equivalent data collection capabilities. It is also expected to introduce additional complexities in regards to staff maintenance and operations.

Therefore, continued maintenance of the existing Wireless Vehicle Detection System manufactured and available for purchase by Sensys Networks is the appropriate option. Approval of this request at your earliest convenience would be appreciated. This project is scheduled for FY15.

EXAMINED AND APPROVED 7/28/14
DATE
Gregory R. Bodd
Federal Highway Administration

EXAMINED AND APPROVED
DATE

Federal Highway Administration